

## 2011 VADEQ Citizen/Non-Agency Monitoring Activity Report

Since 2004, the number of stations monitored by citizen monitoring organizations, non-DEQ government agencies, private industries, and other monitoring groups has increased and much of the data collected have been incorporated into the bi-annual *305(b)/303(d) Integrated Water Quality Assessment Report* (Integrated Report). The upcoming 2012 Integrated Report, scheduled for release in April 2012, will contain the most citizen monitoring data to date.

### Citizen Monitoring Group Activities:

One of the ways DEQ tracks citizen monitoring is to identify the number of groups that have Level III Quality Assurance (QA) status.

QA Level III status is awarded to non-DEQ monitoring organizations that met three conditions:

1. Pass a DEQ field or (when applicable) laboratory audit
2. Possess a DEQ approved Quality Assurance Project Plan (QAPP) and field or laboratory Standard Operating Procedures (SOP)
3. Provide calibration and other quality control information to DEQ. This information must meet the specific criteria stated in the QAPP

Level III groups provide data that is comparable to DEQ field data. Because of this, Level III data can be used to independently list or delist waters from the 303(d) Impaired Waters List.

**Table 1- Level III Citizen Volunteer Organizations and Academic Institutions:**

Citizen Group	Member Groups	Level III Sites*	Level III Parameters	Other Monitored Parameters
Alliance for Chesapeake Bay	8	76	Dissolved Oxygen (DO), Temp.	E. coli, pH, Nutrients, Turbidity
Chesapeake Bay Governors School	1	4	DO, pH, Temp.	
Clean Virginia Waterways	1	23	E. coli	
Dividing Creek Association	1	48	DO, pH, Temp.	E. coli, Nutrients, Turbidity
Friends of Norfolk Environment	1	11	Enterococcus	E. coli
Friends of Shenandoah River	6	226	DO, E. coli, Nutrients, pH, Temp.	Macroinvertebrate (SOS** member)
Goose Creek Association	1	23	DO, pH, Temp.	Macroinvertebrate (SOS** member)
Historic Green Springs Inc.	1	7	DO, Nutrients, Temp.	
Lake Anna Civic Association	1	32	Chlorophyll a, DO, E. coli, pH, Nutrients, Temp.	
Leesville Lake Association	1	12	DO, pH, Temp.	E. coli
McClure River Restoration Project	1	38	E. coli	
National Committee for the New River	1	34	DO, Temp.	pH, Turbidity
Poquoson Citizens for the Environment	1	32	pH, Temp	E. coli
Smith Mountain Lake Association	1	141	Chlorophyll a, DO, E. coli, Nutrients, pH, Temp.	Macroinvertebrate (SOS** member)
StreamWatch	1	114	Macroinvertebrate	E. coli
Timberlake Homeowners Association	1	11	Chlorophyll a, DO, E. coli, Nutrients, pH, Temp.	
<b>Total</b>	<b>27</b>	<b>832</b>		

\* Stations with accurate site coordinates and located away from permitted discharges.

\*\* Save Our Streams

In addition to the contributions provided by Level III monitoring groups, DEQ also works closely with monitoring groups that have Level II QA status.

QA Level II status is awarded to non-DEQ monitoring organizations that have a DEQ approved QAPP. At this level, field or laboratory methods may deviate from DEQ recognized methods if the method provides similar quality data to an approved method.

Level II groups provide useful data to DEQ for identifying waterbodies for future DEQ monitoring and providing a generalized tracking of the success of efforts to implement Total Maximum Daily Loads. Level II data cannot be used by DEQ to list or delist waterbodies on the 303(d) Impaired Waters List.

**Table 2- Level II Citizen Volunteer Organizations and Academic Institutions:**

<b>Citizen Group</b>	<b>Member Groups</b>	<b>Level II Sites*</b>	<b>Level II Parameters</b>	<b>Other Monitored Parameters</b>
Audubon Naturalist Society	1	8	Macroinvertebrate	
Blackwater/Nottoway Riverkeeper	1	14	DO, pH, Temp.	Nutrients
Blue Ridge Community College	1	2	E. coli, pH, Temp.	
Bull Run Mountains Conservancy	1	6	DO, pH, Temp.	
Cowpasture River Preservation Association	1	15	E. coli	Macroinvertebrate (SOS** member)
Cubitt Creek Monitors	1	10	E. coli, Temp	
Friends of Blacks Run Greenway	1	15	E. coli	
Friends of Chesterfield's Riverfront	1	32	DO, E. coli, pH, Temp.	
Friends of Russell Fork	1	19	E. coli, Temp.	
George Mason High School	1	4	E. coli	
Headwaters Soil and Water Conservation District (SWCD)	1	12	E. coli	
Hoffler Creek Wildlife Foundation	1	1	DO, pH, Temp.	
Isle of Wight Ruritan Club	1	3	DO, pH, Temp.	
John Marshall SWCD	1	33	DO, E. coli, Nutrients, pH	Macroinvertebrate (SOS** member)
Lord Fairfax SWCD	1	12	E. coli	
Loudoun Wildlife Conservancy	1	33	E. coli, Macroinvertebrate	
Mattaponi and Pamunkey Rivers Association	1	13	E. coli	
Nelson County Master Gardeners	1	13	E. coli	
Opequon Watershed Inc.	1	13	E. coli	
Potomac Appalachian Trail Club	1	7	Macroinvertebrate, pH, Temp.	
Prince William SWCD	1	12	E. coli	
Randolph Macon College	1	12	E. coli	
RappFLOW	1	20	DO, E. coli, pH, Temp.	
Riverine Master Naturalists	1	6	DO, E. coli, pH, Temp.	
Rockfish Valley Foundation	1	6	E. coli	
Save Little Pimmit Run	1	5	E. coli	
Southside SWCD	1	20	E. coli	
Thomas Jefferson SWCD	1	11	E. coli	
Upper Tennessee River Roundtable	1	9	E. coli	
Virginia Karst Monitors	1	9	DO, E. coli, pH, Temp.	
Virginia Save Our Streams (SOS)	62	468	Macroinvertebrate	
<b>Total</b>	<b>92</b>	<b>855</b>		

\* Stations with accurate site coordinates and located away from permitted discharges.

\*\* Save Our Streams

### **Citizen Monitoring Grant:**

For the FY2012 Citizen Monitoring Grant solicitation, DEQ received 18 applications totaling \$109,409.00 in requests compared to \$88,000.00 in available funding. A review panel evaluated the applications and 13 applicants received awards. Applications were scored based on the size and scope of the project, collaboration with other monitoring organizations, and the ability to sustain monitoring beyond the grant year. Grants will support volunteer based monitoring activities from January 1 through December 31, 2012. A final report from each recipient, including monitoring data, is due by February 15, 2013. Appendix 1 contains more information about the FY2012 grant recipients.

### **Citizen Monitored Stream Miles:**

In 2002, the Virginia General Assembly passed legislation that established the Virginia Citizen Water Quality Monitoring Program in the Code of Virginia ([§62.1-44.19:11](#)). During the 2007 General Assembly, House Bill 1859 was passed that amended the Code as follows : "It shall be the goal of the Department to encourage citizen water quality monitoring so that 3,000 stream miles are monitored by volunteer citizens by 2010."

This goal was met during the data collection period for the 2010 Integrated Report when DEQ verified that citizen monitoring groups monitored 3,499.45 miles of streams, 30,059.98 acres of lakes and reservoirs, and 37.48 square miles of estuaries.

For the 2012 Integrated Report, a final tally of mileage will not be ready until the 2012 Citizen Report which will be available next winter. Initial figures indicate the net contribution will be about the same or slightly higher from 2010 Integrated Report figures.

### **Other Non-Agency Monitored Miles:**

As with citizen contributions, DEQ is tracking the contributions by non-citizen monitoring organizations. These 'non-agency' submitters consist of other government agencies, private businesses, and other organizations that voluntarily provide monitoring data to DEQ but who do not enlist citizen volunteers to conduct monitoring.

For the 2010 Integrated Report, non-agency organizations provided data covering 638.91 stream miles, 10,685.04 square acres of lakes or reservoirs, and 28.86 square miles of estuaries. For the 2012 Integrated Report, initial estimates are that non-agency groups will provide significantly more stream and estuary data than in 2010 and about half the amount of reservoir data. This is largely due to the addition of new stations and non-agency data submitters, while one organization conducting a large lake monitoring program no longer submits their data for DEQ assessment purposes.

### **Citizen Nominations for Waters to be Monitored by DEQ:**

As required by the Code of Virginia [§62.1-44.19:5.F](#) (Water Quality Monitoring, Information and Restoration Act; "WQMIRA"), DEQ must consider citizen nominations for waters to be monitored when forming the annual Monitoring Plan. From January 1 through April 30 2011, DEQ received 14 nominations of waters to be monitored by DEQ. Four nominations were for waterbodies to receive benthic macroinvertebrate monitoring and the remaining ten for ambient water column monitoring. DEQ will monitor at ten waterbodies during the 2012 sampling year. The reasons for not following up at the remaining four were due to limited resources and that DEQ was already monitoring in the vicinity. Table 3 lists the nominated waterbodies that DEQ will monitor in 2012.

**Table 3: Nominated Waterbodies Prioritized for DEQ Monitoring**

County	Stream Name	Parameter	Name of Nominating-Group
Mecklenburg	Flat Creek	Ambient	Lake Gaston Association
Mecklenburg	Great Creek	Ambient	Lake Gaston Association
Pulaski	Rock Creek	Ambient	National Committee for the New River
Albemarle	N.F. Moormans River	Ambient	Rivanna River Basin Commission
Arlington	Little Pimmit Run	Ambient	Save Little Pimmit Run
Loudoun	S. F. Broad Run	Ambient	Loudoun Watershed Watch
Loudoun	Broad Run	Benthics	Loudoun Watershed Watch
Loudoun	Catoctin Creek	Benthics	Loudoun Watershed Watch
Loudoun	Tuscarora Creek	Benthics	Loudoun Watershed Watch
Loudoun	Elklick Branch	Benthics	Loudoun Watershed Watch

**Citizen/Non-Agency Monitoring Database:**

The VADEQ Citizen/Non-Agency monitoring database, accessible at [www.deq.virginia.gov/easi/mdpro/public\\_html](http://www.deq.virginia.gov/easi/mdpro/public_html), has been available since January 2008. As of December 2011, the database contained 2,077 registered sample sites. Currently, the site hosts data from the following organizations:

Abingdon Wastewater Treatment Facility	James City County
Alliance for the Chesapeake Bay	John Marshall Soil and Water Conservation District (SWCD)
Arlington County	Lake Anna Civic Association
Blackwater/Nottoway Riverkeeper	Leesville Lake Association
Chesapeake Bay Governor's School	Lord Fairfax SWCD
Chesapeake Beach Civic League	Loudoun County
Chesterfield County Department of Environmental Engineering	Loudoun Watershed Watch
Chesterfield Public Schools	Mattaponi and Pamunkey Rivers Association
City of Newport News Dept of Public Utilities	McClure River Restoration Project
City of Norfolk Department of Public Works	National Committee for the New River
City of Suffolk Department of Public Works	Northern Neck Four Creeks Monitors
Clean Virginia Waterways	Page County Environmental Services
Cowpasture River Association	Pocahontas State Park
Dividing Creek Association	Poquoson Citizens for the Environment
Edge Valley Preservation LLC	Prince William SWCD
Fairview Beach Monitors	Randolph-Macon College
Friends of Blacks Run Greenway	RappFLOW
Friends of Chesterfield's Riverfront	Riverine Chapter Virginia Master Naturalists
Friends of Norfolk Environment	Roanoke Valley Chapter Trout Unlimited
Friends of the Russell Fork	Smith Mountain Lake Association
Friends of the Shenandoah River	Southside SWCD
George Mason High School	Thomas Jefferson SWCD

Goose Creek Association  
Historic Green Springs Inc.  
Isle of Wright Ruritan Club

Timberlake Homeowners Association  
University of Virginia  
Virginia Save Our Streams

**Public Outreach**

The Water Quality Monitoring and Assessment Programs (WMA) at DEQ have played an active role in participating in community events. Citizen monitoring organizations sponsored many of the events held throughout the Commonwealth. In 2011, WMA Central and Regional Office staffs participated in 32 such events. Appendix 2 provides additional details of these events.

**Volunteer Monitoring Training**

During 2011, DEQ staff participated in 13 water quality training and technical assistance events with various monitoring groups. Training and technical assistance to monitoring groups will continue to be a priority in 2012. Appendix 3 lists these training events DEQ staff participated in.

### Appendix 1: List of FY2009 Citizen Monitoring Grant Recipients

<b>Name of Organization</b>	<b>Project Details</b>	<b>Parameters</b>	<b>Locality or Region</b>	<b>Watersheds</b>	<b>Award</b>
<b>Alliance for the Chesapeake Bay</b>	Training of existing volunteers. Maintain online database, purchase equipment, and printing and monitoring related travel costs.	DO, pH, Salinity, Temp. water clarity	Eastern Half of Virginia	Various tributaries of the Chesapeake Bay	\$12,000.00
<b>Big Sandy Basin Coalition</b>	Monitoring in the Big Sandy River Basin in partnership with McClure River Restoration Project and the Friends of Russell Fork.	Conductivity, DO, E. coli, pH, Temp.	Buchanan, Dickenson	Big Sandy River Basin	\$3,900.00
<b>Chesterfield County Dept. of Environmental Engineering</b>	Continue Level II volunteer monitoring efforts in Chesterfield County for the Friends of Chesterfield's Riverfront.	DO, E. coli, pH, Temp.	Chesterfield	Middle James River drainage	\$3,725.00
<b>Dividing Creek Association</b>	Provide volunteer training, purchase supplies and equipment, and expand monitoring.	DO, E. coli, pH, Salinity, Temp, Water Clarity	Northumberland	Dividing Creek and tributaries	\$4,000.00
<b>Friends of Middle River</b>	Begin a volunteer program in the Middle River and help meet goals stated in the Middle River TMDL Implementation Plan.	Macroinvertebrate Stream Habitat, Temp.	Augusta	Middle River and Tributaries	\$3,800.00
<b>Friends of the Shenandoah River</b>	Long term monitoring of the Shenandoah River covering 3,000 square miles in 8 counties, 59 different watersheds	DO, E. coli, Nutrients, pH, Temp	Augusta, Clarke, Frederick, Page, Rockingham, Shenandoah, Warren	Shenandoah River and tributaries	\$10,000.00
<b>Historic Green Springs Inc.</b>	Continued monitoring of the South Anna River headwaters	DO, Nutrients, pH, Temp., water clarity	Orange, Louisa, Spotsylvania	York	\$1,875.00
<b>Izaak Walton League of America, Inc.</b>	Support Virginia SOS monitoring activities including training, quality assurance, and database management.	Macroinvertebrate	Statewide	Statewide	\$12,000.00
<b>Lake Anna Civic Association</b>	Continue Level II/III monitoring program in partnership with DEQ. Volunteers collect lake samples from April to October.	Chlorophyll a, DO, E. coli, Nutrients, pH, Temp.	Orange, Louisa, Spotsylvania	Lake Anna	\$4,000.00
<b>Nansemond River Preservation Alliance</b>	Monthly monitoring at 7 sites along the Nansemond River	DO, pH, Salinity, Temp, water clarity	City of Suffolk	Nansemond River and Tributaries	\$4,000.00
<b>National Committee for the New River</b>	Continue and expand Level II/III monitoring program in the New River watershed.	DO, E. coli, pH, Temp, water clarity	Bland, Carroll, Floyd, Giles, Grayson, Pulaski, Wythe	New River and tributaries	\$3,700.00
<b>Smith Mountain Lake Association</b>	137 station Continue water quality monitoring program in Smith Mountain Lake from May to August of 2012.	Chlorophyll a, DO, E. coli, Nutrients, pH, Temp	Bedford, Campbell, Franklin	Smith Mountain Lake and tributaries	\$17,000.00
<b>Upper Roanoke River Roundtable</b>	Monitor water quality to educate the community about the benefits of best management practices.	Macroinvertebrate	Smyth, Washington	Clinch and Powell River tributaries	\$3,000.00
<b>Virginia Water Monitoring Council</b>	Provides educational information about water monitoring and water quality and provide World Water Monitoring Day kits.	N/A	Statewide	Statewide	\$5,000.00
					\$88,000.00

## **Appendix 2: Public Outreach Events**

**February 17: Augusta County Science Fair:** Beverly Manor Middle School, Valley Regional Office staff participated.

**March 23: Bon Air Elementary School Chemical and Biological Monitoring Fair.** Central staff demonstrated monitoring techniques to students. Chesterfield, VA.

**March 31: JB Watkins Elementary School.** DEQ staff helped judge the "Green Wing" Science and Engineering Fair. Richmond, VA.

**April 2-3: Heritage Days at Graves Mountain Lodge.** DEQ Valley Regional Office staff participated. Syria, VA.

**April 9: Bellemeade Stream Cleanup Event.** Two Central Office staff joined with the Alliance for the Chesapeake Bay and local citizens to clean up an unnamed tributary Goode Creek. Richmond, VA.

**April 9: John Tyler Community College Earth Day.** DEQ staff talked about collecting benthic macro-invertebrates, water quality testing and the importance of composting. Richmond, VA.

**April 13: Recycling Education Day at the Diamond.** DEQ employees talked with groups about the importance of and the many ways one can recycle. Richmond, VA.

**April 15: 2011 Energy and Environmental Career Exposition.** Christiansburg High School, DEQ staff from the Blue Ridge Regional Office in Roanoke DEQ staff from Roanoke participated.

**April 15: Greenfield Elementary Earth Day activities.** Central office staff participated. Chesterfield, VA.

**April 23: Town of Abingdon Earth Day celebration:** Southwest Regional Office staff participated.

**April 23: Earth Day Event at Wintergreen Resort:** sponsored by the Blue Ridge Virginia Naturalists, Staff from the Valley Regional Office participated. Nelson County, VA.

**April 30: Waynesboro Riverfest.** Valley Regional Office staff participated.

**May 1: Earth Day Celebration at Mt. Trashmore.** Tidewater Regional Office staff participated. Virginia Beach, VA.

**May 7: Camp Brady Saunders.** DEQ staff talked with 30 students and their families about the importance of healthy aquatic resources emphasizing World Water Monitoring Day. Goochland County, VA

**May 27: Camp Brady Saunders Fishing and Aquatic Ecology Program.** Goochland County, VA

**May 29: Down on the Farm.** DEQ Central Office staff presented benthic macroinvertebrate and water quality sampling to 350 participants. Rappahannock County, VA

**June 1: Mountain View Elementary School's Dry River Environmental Day;** DEQ staff from the Valley Regional Office presented a chemical monitoring station to over 88 students

**June 9: Adopt a Stream cleanup.** Valley Regional Office staff participated. Harrisonburg, VA.

**June 9: Bon Air Elementary School.** DEQ staff talked about sources of pollution and ways to prevent it to 75 students. Chesterfield, VA.

**June 11: Wax Museum and Bay Day at Robious Middle School.** DEQ participated in the event with over 350 students in attendance. Chesterfield, VA.

**June 28: Virginia FFA Environment & Natural Resources Competition.** Valley Regional Office staff participated.

**July 22: River's Day Event at Blackwater Boat Landing.** DEQ staff presented exhibits on underground storage tanks, landfills, and water quality. Franklin, VA.

**July 26 – August 4: Boy Scout Jamboree.** DEQ presented topics about benthic macroinvertebrate collection, water quality monitoring, air monitoring, and the composting to an estimated 12,000 Boy Scouts during the ten day event. Fort A. P. Hill, VA.

**August 2: Virginia Highlands Festival.** DEQ staff demonstrated how to collect and identify macroinvertebrates and how this information can indentify water quality conditions. Abingdon, VA.

**August 4: Virginia Highlands Festival.** DEQ staff gave an overview of DEQ programs to an audience of 300 attendees and members of the press. Abingdon, VA.

**August 10-13: EPA Region 3 Volunteer Monitoring Conference.** DEQ staff gave several presentations on topics relating to the Virginia Citizen Monitoring Program. Westminster, MD.

**September 10: Watershed Walk.** DEQ staff demonstrated water monitoring sampling techniques to 150 participants. Onancock, VA.

**September 19: World Water Monitoring at Haines Point.** More than 250 students from local schools participated in monitoring activities. DEQ northern regional staff participated.

**September 30: River Day 2011 at Sandy Point.** DEQ central office staff participated.

**October 3 - 9: State Fair.** DEQ employees manned an exhibit on benthic macroinvertebrate collection and how this process is a good indication of water quality. Doswell, VA.

**October 22: Virginia Citizens for Water Quality Annual Summit.** DEQ staff attended gave a presentation to an audience of 60 members. Ashland, VA.

**October 26: George Mason University.** DEQ staff gave a lecture on environmental education and monitoring for a graduate level class. Fairfax, VA.



### Appendix 3: Volunteer Monitoring Training

1. **March 3: Alliance for the Chesapeake Bay.** Conducted an inspection of field equipment and validated the accuracy of the Alliance reference thermometer. Richmond, VA.
2. **March 19: Dividing Creek Association.** Validated accuracy of thermometers and inspected monitoring equipment and methods. Kilmarnock, Virginia.
3. **March 29: Pocahontas State Park.** Inspected and training of lake monitoring techniques. Chesterfield, VA
4. **April 1: Poquoson Citizens for the Environment.** Validated accuracy of thermometers at DEQ Tidewater Office. Virginia Beach, VA.
5. **April 15: Lake Anna Civic Association.** Reviewed protocols and validated field equipment accuracy. Lake Anna State Park, VA
6. **April 28: McClure River Restoration Project.** Conducted an inspection of the laboratory facilities used for E. coli analysis. Verified the accuracy of the laboratory thermometers and provided guidance on testing procedures. Clintwood, VA.
7. **July 11: Ferrum College/Smith Mountain Lake Association.** Reviewed Ferrum College laboratory facilities and field procedures in processing samples for the Smith Mountain Lake Association monitoring program. Validated accuracy of field and laboratory thermometers. Ferrum, VA.
8. **August 30: Longwood University.** Conducted an inspection and audit of the laboratory facilities used for E. coli analysis. Verified the accuracy of the laboratory thermometers. Farmville, VA.
9. **October 6: Roanoke Chapter of Trout Unlimited.** Provided equipment and training for volunteers to monitor in the Glade Creek watershed. Roanoke, VA.
10. **October 18: Friends of the Namesond River.** Conducted training of sampling methods for a new monitoring organization. Suffolk, VA.
11. **October 22: Virginia Citizens for Water Quality Annual Summit.** DEQ conducted training session on how to use the DEQ Citizen and Non-Agency database located at [www.deq.virginia.gov/easi/mdpro/public.html](http://www.deq.virginia.gov/easi/mdpro/public.html). Ashland, VA.
12. **November 12: Isaac Walton League of America.** Training provided to Maryland and Virginia volunteers on the use of the Coliscan Easgyel method. Gaithersburg, MD.
13. **November 19: Goose Creek Association.** Conducted training and inspection of field monitoring equipment. Warren, VA.